

## Prevalence of Urinary Schistosomiasis Among School Aged Pupils in Maiduguri, Nigeria

A. A. Biu\* and M. A. Akpan

Department of Veterinary Microbiology and Parasitology, Faculty of Veterinary Medicine,  
University of Maiduguri, P. M. B. 1069, Maiduguri, Nigeria

---

### ABSTRACT

This study on the prevalence of urinary schistosomiasis in primary/nursery school children in Maiduguri was conducted in September, 2006. A total of 300 urine samples were examined using the sedimentation technique, which revealed an overall prevalence of 5.7% made up of 12(6.3%) males and 5(4.6%) females ( $p>0.05$ ). Age groups of 4-7 years, >7-12 years, and >12-15 years had 2 (4.1%); 6 (4.3%); and 9 (8.2%) respectively ( $p<0.05$ ). Disease distribution among the schools examined indicated that Kings Private School, Distinction Preparatory School, and Munac Primary School had relatively lower prevalence (0.0%, 4.3% and 6.1%, respectively) compared with Ultimate Primary/Nursery School with 12.5% ( $p<0.05$ ). In general, the prevalence of the disease was low in this study but medically significant. Consequently, efforts for containment should be emphasized among the pupils.

**Key words:** Prevalence, schistosomiasis, pupils, Maiduguri, Nigeria

---

### INTRODUCTION

Urinary schistosomiasis is one of the most common infectious diseases afflicting over 200 million people; representing 8.0% of the world's population (Amy, 2002; Robert and Cirillo, 2002). The disease is endemic in Nigeria (Dunah and Briston, 2000; Ekejindu *et al.*, 2002; Nnoruka *et al.*, 2002; Mafiana *et al.*, 2003), particularly the north eastern region associated with lack of pure and portable rural and urban water supply. Previously reports on the vector and incidence of bilharziasis in this study area failed to be target- group specific (Gadzama, 1984; Biu *et al.*, 2000). This study was therefore designed to update their findings by focusing on the children who represent the most vulnerable population for the disease.

### MATERIALS AND METHODS

#### *Study area and group*

This study was conducted in September, 2006 on children attending Distinction Preparatory School, Munac Primary School, Ultimate Primary/Nursery School and Kings Private School respectively, representing four wards in Maiduguri town (Custom, Mairi, Bulumkutu and Maduganari). The children examined were aged 4 - 15 years but were categorized as 4 -7 years, > 7 - 12 years, and > 12 - 15 years, respectively. They were of both sexes.

#### *Sample collection and examination*

Three hundred (300) urine samples voluntarily submitted by the pupils into sterile universal bottles were taken to the Veterinary Parasitology Laboratory, of the University of Maiduguri for investigation. Each urine sample was transferred into a centrifuge tube and centrifuged at 3000 rpm for 5 minutes. The sediments formed were placed on a clean grease-free glass slide and covered with a cover slip. The sample was examined under a light microscope for the presence of *Schistosoma haematobium* ova recognized as golden yellowish, elliptical eggs with terminal spines (Lynne and David 1993; Amy 2002; Ghoneim, 2002).

#### *Statistical analysis*

Differences in prevalence of urinary schistosomiasis among sex of the pupils were tested using the paired

---

\*Author for correspondence

student's *t*-test at 5% confidence interval (Mead and Curnow 1983).

## RESULTS

The results of this study indicate an overall prevalence of 17(5.7%) for urinary schistosomiasis among the pupils examined during the study (Table 1). Among the sexes, the prevalence for infection were 6.3% and 4.6% for males and females respectively ( $p > 0.05$ ), while among the age groups, those aged 4 - 7; >7- 12 and >12 - 15 years had 2 (4.1%), 6(4.3%) and 9(8.2%) infected individuals respectively ( $p < 0.05$ ). Table 2 shows the age-wise distribution of infection among the various schools examined. Kings Private School, Distinction Preparatory School, Munac Primary School and Ultimate Nursery/Primary School had prevalences of 0%; 4.3%; 6.1% and 12.5% respectively.

**Table 1.** Prevalence of schistosomiasis among pupils examined in Maiduguri based on their age and sex

	No. of pupils examined	No. (%) infected	p = 0.05
<b>Overall</b>	300	17 (5.7)	
<b>Sex</b>			
Male	190	12 (6.3)	p > 0.05
Female	110	5 (4.6)	
<b>Age (years)</b>			
4-7	49	2 (4.1)	p < 0.05
> 7-12	141	6 (4.3)	
> 12-15	110	9 (8.2)	

**Table 2.** Age- wise distribution of infection among the various schools examined

Primary schools visited	No. of pupils examined	No. (%) infected	Age-wise distribution of infection		
			4-7	> 7-12	>12-15
Distinction Preparatory School	93	4 (4.3)	0 (0.0)	1 (25.0)	3 (75.0)
Munac Primary School	66	4 (6.1)	0 (0.0)	1(25.0)	3 (75.0)
Ultimate Nursery & Primary School	72	9 (12.5)	2 (22.2)	4 (44.4)	3 (33.3)
Kings Private School	69	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

## DISCUSSION

The results of this study have shown a low but significant prevalence of 5.7% for schistosomiasis in pupils in Maiduguri. This is supported by the findings by Gadzama (1984), and Biu *et al.* (2000) that the disease is endemic in this northeastern region generally seen as a chronic debilitating disease among communities with poor living and sanitary conditions.

Similar prevalence for both sexes was reported in this study, which agrees with the reports by Nduka *et al.* (1995), Biu *et al.* (2000), Mafiana *et al.* (2003), and Nnoruka *et al.* (2002), who reported that there is no consistent

pattern attributable to sex differences with respect to prevalence of infection in Nigeria, and water contact pattern explains infection status. Also the age group > 12 - 15 was more infected in this study compared with lower ages which agrees with the report by Ekejindu, *et al.* (2002) that peak prevalence occur among younger patients due to their increased water contact pattern. The higher prevalence among ultimate nursery/primary school pupils calls for an improved health education geared towards changing behaviours and attitudes along side adequate treatment of the infected pupils.

## REFERENCES

- Amy, J. B. (2002). Schistosomiasis of the bladder. *Med. Instant Acc.* 2: 133-148.
- Biu, A. A., Nwosu, C. O. and Akuta, A. (2000). The incidence of human schistosomiasis in Maiduguri, Northern Nigeria. *Biosci. Res. Commun.* 12 (1): 9-11.
- Dunah, C. S. and Briston, B. (2000). The prevalence, of *Schistosoma haematobium* among primary school pupils in Mayo-belwa LGA, Adamawa State. *Nig. J. Parasitol.* 21: 15-20.
- Ekejindu, I. M., Ekejindu, G. O. C. and Agbai, A. (2002). *Schistosoma haematobium* infection and nutritional status of residents in Ezi-anam, a riverine area of Anambra State, southeastern Nigeria. *Nig. J. Parasitol.* 23: 131-138.
- Gadzama, N. M. (1984). Vectors of bilharziasis (schistosomiasis) in man and snail control. *Nig. J. Parasitol.* 24-27.
- Ghoneim M. A. (2002). Bilharziasis and the genito urinary tract. *Br. J. Urinary Infec.* .89: 22-30.
- Lynne, S. G. and David, A. B. (1993). *Diagnostic Medical Parasitology*. Association of Scientific and Medical Publishers 2<sup>nd</sup> ed. pp. 322-333.
- Mafiana, C. F., Ekpo, U. F. and Ojo, D. A. (2003). Urinary schistosomiasis in preschool children in settlements around Oyan reservoirs in Ogun State, Nigeria: Implication for control. *Trop. Med. Intern. Hlth*, 8(1): 78-82.
- Meads, R. and Curnow, R. N. (1983). *Statistical Methods in Agriculture and Experimental Biology*. Chapman and Hall, London. 465pp.
- Nduka, F. O., Ajaero, C. M. and Nwoke, B. E (1995). Urinary schistosomiasis among school children in an endemic community in Southeastern Nigeria. *Appl. Parasitol.* 36 (1): 34-40.
- Nnoruka, V. C., Anya, A. O. and Okafor, F. C. (2002). Epidemiological studies on urinary schistosomiasis in Imo State II: Parasitological and morbidity studies among primary school children. *Nig. J. Parasitol.* 23: 111-118.
- Robert, T. L. and Cirillo, J. R. (2002). Schistosomiasis of the bladder. *Med. Instant Acc.* 3: 22-30.